

Notes

A Homoeotic *Agraulis vanillae incarnata* (Nymphalidae)

A male homoeotic *Agraulis vanillae incarnata* (Riley) was collected 27 October 1963 at Ventura College, Ventura, California. The undersides of the forewings display the condition (Figs. 1 and 2). On the left forewing, the homoeotic patterns consist of a ring of brown scales in the silver spot at the end of interspace M_2 ; an extra silver spot at the margin in the same interspace; two minute silver spots on the anterior side of vein M_3 ; a black-encircled silver spot, a streak of brown, and three small brown spots next to the normal black spot in interspace Cu_1 . On the right forewing, two small silver spots near the margin and vein M_2 in interspace M_1 .

I believe this to be the first reported case of homoeosis in this species as no other records were cited by Sibatani (1983, A Compilation of Data on Wing Homoeosis in Lepidoptera. J. Res. Lepid. 22:1-46, 118-125) for the subfamily Heliconiinae.



Fig. 1. Homoeotic male *Agraulis vanillae incarnata*, ventral.

Fig. 2. Detail of ventral left forewing.

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A Complex Gynandromorph of *Pontia daplidice* (Pieridae)

A complex gynandromorph appeared in a brood of *Pontia daplidice* (L.) reared by H.-J. Geiger at the Zoologisches Institut der Universität Bern, Switzerland, from a female collected September 18, 1963, at Gallargues-le-Montueux, 20 km SE Nîmes, France, by Prof. A. Scholl. The butterflies were reared under uncontrolled photoperiod and temperature. The specimen, which is in my collection at Davis, California, has a male left forewing, a female right forewing, a female left hindwing, and a mosaic right hindwing. The distribution of male and female tissue appears the same on both dorsal and ventral surfaces. The external genitalia are aborted but largely female and probably non-functional. The remainder of the brood was normal.

This specimen is the most complex mosaic gynandromorph known to me, presenting reversed sexual bilaterality in the fore- and hindwings, with anterior-posterior mosaicism on one hindwing, and all aspects repeated on both surfaces; nothing comparable to it was noted by Sibatani (1983, A Compilation of Data on Wing Homoeosis in Lepidoptera, J. Res. Lepid. 22:1-46). None of four developmental biologists I have consulted has been able to generate a reasonable hypothesis to account for it, though three have noted the distortion of shape in the male forewing and suggested it might be related to injury to the pupa. Unfortunately, the pupal exuviae were not saved.

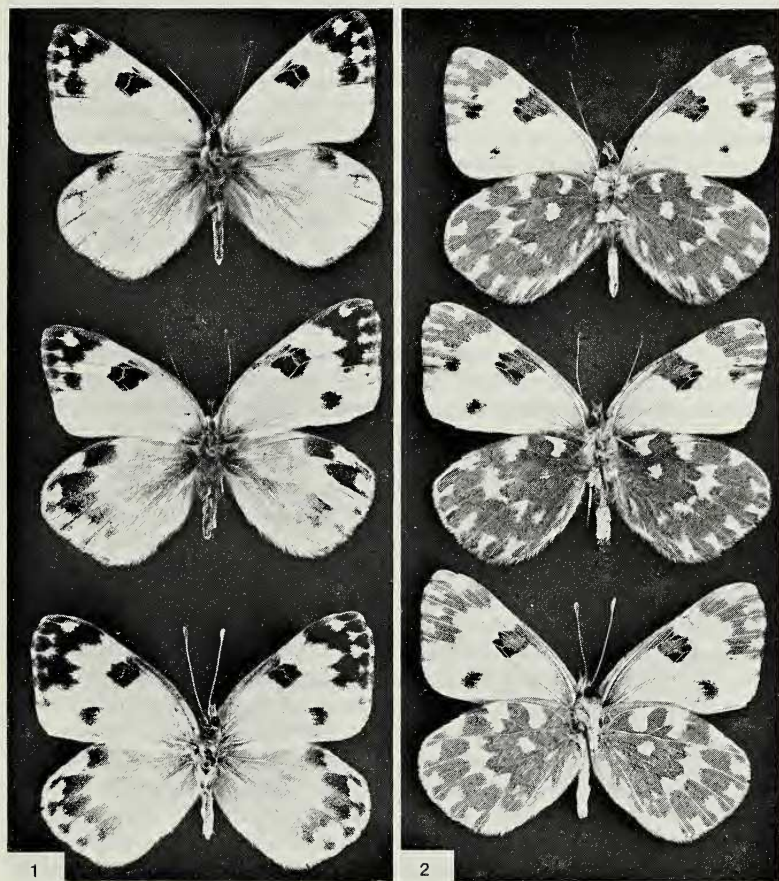


Fig. 1. Dorsal surfaces of *Pontia daplidice*. Top, normal male; center, gynandromorph; both from 20 km SE Nimes, France. Bottom, normal female, Ohrid, Macedonia, July 1969.

Fig. 2. Ventral surfaces of specimens in Fig. 1.

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The Origin of *Satyrium calanus albidus*

The recent paper on *albidus* (C. Ferris 1983, J. Res. Lepid. 21:188-193) did not mention the evolutionary reason for its pallidity. The strongly-white-underside *heathii* "aberration" is actually a recurrent *mutation* in hairstreaks (M. Fisher, J. Res. Lepid. 15:177-181). The pallidity of *albidus* must be due to several different genes, because variation is continuous between the whitest and darkest adults, and some populations (Montrose Co., CO) are rather pale, yet the whitest "*heathii*" forms are absent (or rare). In Man., Mich., or N.J. white mutants must be conspicuous to predators on the dark vegetation there, quickly spotted by predators. But everywhere I have found *albidus*, whitish-gray sagebrush (*Artemisia tridentata*) is common, on which adults frequently rest. When adults venture from the oaks out into the sage for feeding or mate-locating behavior, their whitish color camouflages them; for this reason, "*heathii*" mutants and the other less-pale mutants spread throughout the population. Subspecies *albidus* would be an ideal subject for the study of genetics and selection for camouflage, its one drawback being its single yearly generation. Interestingly, mate-locating behavior of *albidus* seems to differ from that of spp. *godarti*, occurring on ridgetops (J. Scott 1975, J. Res. Lepid. 14:16) versus gulches or depressions (Ferris' ridge populations may have similar behavior).

Ferris questions the validity of *ssp. albidus* because of its variability; actually it is valid simply because nearly all (at the type locality, all) adults are whiter than *ssp. godarti*, as Ferris amply demonstrates. Variability alone does not invalidate any taxon, witness *Colias eurytheme* and *philodice*, whose white females cannot be distinguished to species, *Papilio polyxenes coloro*, *zelicaon*, and *bairdii brucei*, whose variant forms are well known, and the ultraviolet variants within *Colias alexandra* subspecies described by Ferris himself. Variation is the working material of evolution, and geneticists now have proven that it is naive to expect any population to be invariant. The original description of *albidus* satisfies all the rules of Zoological Nomenclature, including those listed by Ferris, and the holotype, which resembles Figure 8 of Ferris' paper, is available for examination in the Los Angeles County Museum, as stated in the original description (*Papilio* 1:1-12, 1981). Some comments on types are required here because of misconceptions in Ferris' paper concerning the purpose of types. *Only* the holotype has any meaning in systematics, and *only* for the purpose of pinpointing the population from which it came—whether a holotype is an egg, cast larval skin, fossil impression, or the whitest "*heathii*" form (which it is not) does not invalidate the taxon, as numerous rulings attest—and the characteristics of the *population*, not the holotype, must be used for decisions regarding the validity of subspecies or species. Also, allotypes, paratypes, etc. have no validity or use whatsoever, except as syntypes from which a lectotype can be selected in the unlikely event that the holotype has been lost and a replacement is required (even in this case, a lectotype is "not to be designated as a matter of nomenclatorial convenience", as has occurred in the butterflies). But when such paratypes etc. are designated, to exclude "variants" from the type series would constitute bias.

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